MANAGEMENT PROBLEMS AND OPPORTUNITIES

The Missouri Department of Conservation (MDC) is charged with the '...control, management, restoration, conservation and regulation of the bird, fish, game, forestry and all wildlife resources of the state...' As stated in the MDC's recent Regional Management Guideline, 'The Conservation vision is to have healthy, sustainable plant and animal communities throughout the state of Missouri for future generations to use and enjoy, and that fish, forest, and wildlife resources are in appreciably better condition tomorrow than they are today.' In order to achieve this vision, efforts to better manage streams and their watersheds will be a continuing priority in the Moreau River watershed.

This section includes strategic guidelines for MDC Fisheries staff towards achieving this vision while dealing with the problems identified in this watershed which include:

- 1. Insufficient wooded riparian corridors
- 2. Declining aquatic biodiversity and aquatic habitats
- 3. Failed EPA water quality standards
- 4. A potential for agricultural or livestock-related erosion/pollution
- 5. Soil erosion
- 6. In-stream erosion
- 7. Littering
- 8. Limited public access to streams for recreation
- 9. Undetermined management of the sport fish population
- 10. Low community involvement

GOAL I: MAINTAIN OR IMPROVE WATER QUALITY IN THE MOREAU RIVER WATERSHED SO ALL STREAMS ARE CAPABLE OF SUPPORTING DIVERSE NATIVE AQUATIC COMMUNITIES.

Objective 1.1: Meet state water quality standards in basin streams.

Guidelines:

- Cooperate with state (Missouri Department of Natural Resources) and federal agencies (Environmental Protection Agency, U.S. Army Corps of Engineers) to review, monitor for compliance, and recommend requirements for NPDES, 404, 401 and other environmental permits.
- Conduct biological monitoring for fish and invertebrates to help identify stream reaches with poor or deteriorating water quality. This activity will include sampling reaches being studied for the Missouri Resource Assessment Monitoring (RAM) project. Other streams with

high populations of livestock or humans will also be given high priority for sampling at strategic points.

- Conduct fish kill investigations to identify damage to biota and to identify pollutants violating Missouri Water Quality standards.
- Work with Missouri Department of Health officials and MDNR to monitor for and reduce contaminant levels in stream fishes.
- Support and train citizen and volunteer groups like STREAM TEAMS to monitor water quality and to be advocates for the resource.

Objective 1.2: Meet minimum low flow stream discharge requirements.

Guidelines:

- Review and recommend minimum flow requirements for private, civic and industrial projects involving water diversion, storage or withdrawal.

Objective 1.3: Increase awareness of local government officials, business and residential developers of water quality conditions and problems in the Moreau River basin.

Guidelines:

- Participate in local planning activities, public hearings, etc., at which activities impacting water quality are being discussed. Provide input which will help protect aquatic resources and water quality.
- Invite civic officials to workshops addressing water quality problems and best management practices.
- Create articles for or participate in T.V., newspaper, radio and magazine interviews concerning water quality issues and their solutions.

Objective 1.4: Improve citizen involvement in water quality and pollution issues.

- Support and train citizen and volunteer groups like STREAM TEAMS to monitor water quality and to be advocates for the resource.
- Promote annual stream clean-up and adopt-a-stream activities by citizen and school groups. Assist groups with equipment, litter bags, advertisement, or other special needs.
- Utilize local streams in teaching MDC Outreach and Education aquatic education modules so students can develop an awareness of local aquatic resources.

GOAL II: IMPROVE OR MAINTAIN AQUATIC HABITAT CONDITIONS IN THE MOREAU RIVER WATERSHED TO MEET THE NEEDS OF NATIVE AQUATIC BIOTA WHILE PROVIDING FOR SOCIETY'S DEMANDS FOR WATER, AGRICULTURAL, INDUSTRIAL AND DOMESTIC USES.

Objective 2.1: Protect aquatic habitats from excessive siltation and nutrification.

Guidelines:

- Provide at least 100-foot wide timbered riparian corridors and stabilize eroding streambanks on all MDC managed areas in the basin.
- Utilize good soil conservation practices on MDC lands to minimize soil erosion from cropland, building grounds, and parking lots.
- Increase landowner awareness of local stream resources and ways they can help protect these habitats. Information may be dispersed through cooperative interactions with Soil and Water Conservation Districts, Natural Resources Conservation Service and other farm organizations.
- Provide technical assistance to landowners requesting help with streambank erosion problems.
- Provide cost-share money to help fund streambank stabilization and riparian corridor restoration and protection projects (e.g. to cover costs for fencing material to exclude livestock from riparian areas, alternative watering sources, tree seedlings, tree revetments, hard points, etc.) on private lands.
- Develop a list of imperiled watersheds within the basin on which restoration efforts can be focused. Consideration should be given to aquatic as well as prairie/grassland areas due to the number of prairie/grassland dependent species of concern present in this watershed. The Straight Fork watershed should be evaluated further for restoration potential.
- Actively cooperate with other agencies on watershed-based projects (e.g. EQIP, AgNPS, etc.).
- Promote good stream stewardship through public workshops and stream demonstration site tours.
- Facilitate satisfactory animal and human waste management by reporting violations to Missouri Department of Natural Resources and keeping informed about cost-share programs sponsored by other agencies that can help waste producers improve their facilities and management of wastes.

Objective 2.2: Identify and protect unique aquatic habitats from development or degradation.

Guidelines:

- Identify unique habitats during habitat and biotic surveys performed in the basin. A more detailed inventory of the Straight Fork and Clark Fork drainages may yield important habitat features worthy of protection. Submit outstanding resources to the Natural Heritage Database for future monitoring and protection.
- Acquire, protect and enhance critical, unique or otherwise high quality aquatic and riparian habitats.

GOAL III: MAINTAIN DIVERSE, STABLE AND ABUNDANT POPULATIONS OF NATIVE AQUATIC FAUNA WHILE PROVIDING QUALITY SPORT FISHING.

Objective 3.1: Maintain the diversity, abundance and distribution of native non-sport fish and aquatic invertebrates at or above current levels.

Guidelines:

- Continue to inventory biotic assemblages (fish, mussels, and invertebrates) throughout the basin to obtain baseline population information on all 4th order and larger streams with at least 5 miles of stream length. Smith Creek would be an appropriate stream to inventory in the future given its size and close proximity to Straight Fork. Streams having confined animal feeding operations and point source discharge sources should also be inventoried at strategic points so potential threats to community stability and diversity can be identified and corrective actions can be taken. Sampling of these fish and invertebrate communities may involve cooperative projects utilizing staff from MDC Research and Management, University of Missouri, and other groups.
- Monitor the condition of the fish populations at established fish sampling sites at 10-year intervals.
 - Assist with recovery efforts for "species of concern" within the watershed.
- If significant aquatic faunal changes are observed, recommend research projects in cooperation with MDC Research staff to investigate reasons and solutions for community alterations.
- Utilize GIS technology to document population sampling, species distribution, unique habitats, and the location of potential threats to water quality and aquatic biota.

Objective 3.2: Maintain or improve sport fishing opportunities and fish-size quality for anglers without detrimentally impacting non-sport fish populations.

Guidelines:

- Intensively sample sportfish populations on the Moreau, North Moreau, and South Moreau rivers to assess the status of the sportfish populations (including age and growth, population size structure, etc.) in these streams.
- Set management objectives for the sportfish populations and recommend appropriate fishing regulations once adequate data have been collected.
 - Complete fish habitat improvement projects on MDC areas where fish habitat is limited.
- Increase angler awareness of the fisheries in the basin by writing magazine and internet articles, and making photo displays for public events which highlight the basin and its fishing resources and access points.
- Improve the fishing experience for anglers by providing litter-free MDC access sites with well maintained functional facilities.
- Develop a new stream access site to the Moreau River in the vicinity of Highway B or Tanner Bridge Road in Cole County. This would provide an access 8-10 miles downstream from the Honey Creek Access and about 16-19 miles upstream of the Moreau 50 Access.

Objective 3.3: Prevent detrimental impacts on native fauna in the Moreau River basin by exotic aquatic species.

Guidelines:

- Keep tight regulatory control over the introduction of exotic species into state waters.
- Participate on the Missouri Aquaculture Advisory Council (MAAC) and with other organizations to curb the introduction of new exotic species into Missouri.
- Monitor for potentially harmful exotic species, like zebra mussels and bighead carp, in basin streams. This can be done during routine fish and invertebrate surveys.
- Provide flyers at public accesses to inform users about the harmful effects of zebra mussels, certain noxious plants, and the introduction of undesirable species through contamination of boats, trailers, and bait buckets.

GOAL IV: IMPROVE PUBLIC APPRECIATION AND AWARENESS OF BASIN STREAM RESOURCES AND RECREATIONAL USES.

Objective 4.1: Provide information to interested parties on basin stream resources such as public access points, and the flora, fish, crayfish, mussel, bird, and wildlife found in and alongside local streams.

Guidelines:

- Create a basin stream oriented forest, fish, and wildlife guide for distribution on the internet, at nature centers, department offices, and at public events.
- Create a "Moreau River basin" calendar which features the natural resources of this watershed.
- Utilize local streams in teaching MDC Outreach and Education aquatic education modules so students can develop an awareness of local aquatic resources.
- Publicize the acquisition, development and opening of new public access and or stream frontage sites.
- Maintain a statewide emphasis on stream ecology and good stream stewardship in public presentations and publications.